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The effect of innovative work environment on the innovative work behavior of employees

Damianus Abun [(a)*] *Libertine Gertrude R. Macaspact* [(b)] *Elita B. Valdez* [(c)]

Fredolin P. Julian [(d)]

[(a,d)] *Ph.D., Professor, School of Business and Accountancy, Divine Word College of Laoag, Philippines*
[(b)] *Ph.D., Professor, School of Arts, Sciences and Education, Divine Word College of Laoag, Philippines*
[(c)] *Ed.D., Professor, School of Education, Divine Word College of Vigan, Ilocos Sur, Vigan City, Philippines*

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ABSTRACT

The study aims to examine the effect of an innovative work environment on the innovative work behaviour of employees. To broaden the concept of the study, related literature was reviewed. The study used a descriptive assessment and correlational research design and the population of the study was all employees from the two colleges (DWCL and DWCV). The data was gathered through research questionnaires and used inferential statistics to analyze the data. The study found that the innovative work environment and innovative work behaviour are high but not very high. The ANOVA result suggests that there is a significant correlation between an innovative work environment and the innovative work behaviour of employees. It recommends that nurturing innovative work behaviour is to nurture an innovative workplace. The study recognizes its limitation and recommends further investigation concerning different dimensions of innovative work environments and their effect on work performance.

Introduction

We are living in the era of information technology and the current technology that we enjoy is the fruits of invention and innovation, we might assume that innovation is growing higher and faster. Compared to life before the introduction of the internet, cellphones, social media, and other kinds of technology, the current life is far better and that is the fruit of the invention and innovation of the previous generation. If we look into the history of innovation cycles, innovation started 250 years ago and has evolved into six waves. According to Neufeld and Ma (2021), innovation has gone through six waves. The first wave (before 1845 or around 1873) was the innovation of water, power, textile, and irons. It takes 55 years to move into a second wave which involves innovation along with steam, rail, and steel. Then it took 50 years to enter into the third wave of innovation in electricity, chemicals, and Internal-Combustion engines. The fourth wave was the innovation of Petrochemicals, Electronics, and Aviation and this happened after 40 years. The fifth wave is the innovation of Digital networks, Software, and New Media and this took place after 30 years. Now we are entering into the six waves of innovation which involve digitization (AI, Robots, Drones, cleantech) and this takes 25 years. What is next after 1-20 years? The cycles indicate that the speed of innovation is going to be faster and faster in the following years.

The rate of innovation has been linked to economic transformation or economic growth as pointed out by Schumpeter (1942) in his view about creative destruction which argues that incessant product and process innovation mechanisms play a major role in the macroeconomic performance. The speed of innovation of one country reflects its economic development. Indirectly Schumpeter (1942) is stating that no innovation means no economic transformation or development. Thus, the key to economic development is innovation. However, though we are seeing innovations everywhere at different rates and scales, studies suggest otherwise, that the

* *Corresponding author. ORCID ID: 0000-0002-9693-1541*

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rate of innovation has been declining. Huebner (2005) pointed out that the rate of innovation peaked in the year 1873 and now is rapidly declining and there is no sign of reversing it back. The same study indicated that "we are at an estimated 85% of the economic limit of technology, and it is projected that we will reach 90% in 2018 and 95% in 2038". The decline of innovation is also documented by Bloom, et al. (2020) since 1965, showing the declining trend of innovation. Those findings might be true in the West in the case of America as pointed out by Cowen (2011) as he argued that the golden entrepreneurial and innovation age is behind it because in general business dynamics have been growing at a lower rate. However, the story shows another look into Asian countries as compared to Latin America. Asian Countries show an encouraging trend in terms of innovation as pointed out in the study, particularly in East Asia and South-East Asia (Qureshi, et al. 2016). While the West is in a declining trend but Asia and the Pacific are in a rising trend.

The need for innovation is not only in a particular industry but across sectors of industry including education. Since the environment is dynamic and fast-changing in terms of market and technology, educational institutions have no choice except to adapt to new changes in the environment. In-demand skills for a future job are changing which means that what we teach and how we teach today and tomorrow is different. What works today will not work tomorrow. Rapid digitization that is taking place across industries requires a rapid shift in educational concentration (Marr, 2022). Serdyukov (2017) pointed out that the primary focus of educational innovations should be on teaching and learning and practising and the learner, parents, community, society, and culture. The challenge posed by Serdyukov (2017) is how to create a base for large-scale innovations and their implementation, and how to increase the effectiveness of technological innovations, particularly online learning. OECD (2016) pointed out that educational institutions today are running up against very serious problems, if not touched, which could result in serious problems not only for education itself but for economic growth, social progress, and well-being. OECD (2016) then points out areas to be given serious attention to educational innovations such as digitalization, digital practice, and digital skills, which involve integrating ICT in teaching and learning that requires teachers and students to be digitally oriented.

The current trend in innovation and the demand for educational innovation requires educational institutions to review educational policies and practices which demand changes in leadership and management practices. Educational leadership must particularly revisit their management and leadership approach to encourage an innovative environment. Wang (2021) studied the effect of the work environment on employees' innovative work performance. The study found that the dynamics of the work environment affect the individual innovative work performance. A similar study was also conducted by Shah, et al. (2022) to determine the influence of the workplace on the innovative work behaviour of employees and it also confirmed that the workplace is a strong predictor of innovative work behaviour.

The purpose of the current study is to examine the presence of an innovative work environment in the Divine Word College of Laoag and its effect on the innovative work behaviour of employees. The output of the study will help the management to revise the policies and management and leadership practices that promote an innovative work environment. There have been no studies yet related to the current study and to fill the gap, the current study is conducted. The study is divided into several parts. The first part is the introduction or rationale that explains the reason and the purpose of conducting the study. The second part is the literature review which presents the literature that discusses the current topic. The purpose is to deepen the understanding of the concepts and establish the theories of the study. The third part is the research methodology which explains the research design, population, locale of the study, data administration, research instruments, and statistical treatment of data.

Literature Review

The purpose of the literature review is to deepen the understanding of the main concepts or theories of the current topic related to innovation, work environment, innovative work environment, and innovative work behaviour.

Theoretical and Conceptual Framework

The Concept of Innovation and Its Contribution to Development and Quality

The concept of innovation has been misunderstood by many including researchers. The word has been wrongly associated with other related terms such as creativity and invention. To understand the concept of innovation, the definition of different terms must be presented. As a common reference, the dictionary can help us to differentiate the difference between the words to help us understand the whole concept of this paper. Merriam-Webster (n.d) defines creativity as "the ability to create" which means producing something new into existence that previously has not existed. The definition is similar to the definition of the invention. Invention is the ability to produce something new or to "produce for the first time through the use of the imagination or ingenious thinking and experience". While innovation refers to "a change made to an existing product, idea, or field" (Merriam-Webster, n.d). Thus, innovation is not the creation or invention of something new that has not been in existence. Based on the definition given by the dictionary, it is obvious that creativity and innovation are interrelated because innovation can only happen if there is creation or invention in the first place (Amabile (1988). It is just a different way of doing something better (Redding, et al. 2013). In terms of the scope of innovation, it is not limited to tangible products (cellphones, computers, etc) but it encompasses all kinds of services and procedures or methods of carrying out the task as indicated by the definition of West and Farr (1990, p. 9) who define innovation as "the intentional introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization or wider society". This definition suggests that innovation is

the function of individual employees and the organization as a whole. Therefore, the challenge is to change the organizational environment where individual employees or groups can generate ideas and turn those ideas into innovation.

As we have pointed out earlier in the introduction about the relationship between innovation and economic development and quality of service or products. Innovation has been the main driver behind the economic growth and the success of any business organization (Tohidi & Jabbari, 2012) and can help the business gain its competitive advantage (Cocco & Quttainah, 2015). This is emphasized by Acar, et al (2018) that creativity and innovation are the foundation of an organization's competitive advantage. Innovation is also behind quality service and products (Gobeli & Brown, 1993). This is also true in the education sector which requires continuous innovation to deliver a quality output of education (Rubalcaba, 2022). However, innovation is not something isolated from other factors of the organization, particularly a conducive organizational environment that promote creativity and innovation. This has been pointed out by Acar, et al. (2018) that there are factors that constrain innovativeness such as rules and regulations, deadlines, and scarce resources. Thus, it is important for management to eliminate the constraints that hinder the development of creativity and innovation (Amabile, 1996; Amabile & Pratt, 2016; Damanpour, 1991). It is a reality that constraints are always present in every organization, therefore the duty of management is to reduce or eliminate those constraints to allow creativity and innovation to flourish (Acar, et al. (2018).

As pointed out by the definition of West and Farr (1990), the scope of innovation is not limited to tangible products but includes new ideas about processes or methods. Therefore, the application of innovation is not limited to manufacturing industries but applies to all kinds of services like education or banking industries. In education, innovation comes in many forms a new pedagogic theory, methodological approach teaching techniques, instructional tools, and learning processes, services that enhance the better output of student learning (Serdyukov, 2017). Educational innovation can include instructional strategy or delivery systems such as the use of new learning technology. Beyond technology, educational innovation includes introducing new ideas and simply solving old problems to promote equity and improve learning as pointed out by Unicef (n.d). The purpose of educational innovation is to produce a quality output of learning in the form of quality graduates. Halasz (2021) pointed out that innovations that are created by teachers or schools play an important role in improving the quality and effectiveness of education. Teachers must find ways to improve their teaching strategy to deliver their content to the students and therefore creativity and innovativeness are important skills to be acquired by all teachers (Halasz, 2021). However, as we have pointed out earlier that innovation is a dependent variable that depends on the organizational environment (Osborne, 2016). Thus, educational institutions must provide an environment in which the teachers are allowed to introduce their way of doing things/deliver their instructions.

Work Environment

The issue of work environment and productivity have been the concern of management and researchers since the 1900s. It was recognized that the work environment is a significant predictor of productivity. However, the concept of the work environment was not too clear at the beginning. In the beginning, the work environment was referred to as a physical work environment which led to the improvement of office setups including lighting. However, improvements in the physical environment and task structure were not affecting much productivity which led to a shift of attention toward task performance and human relations. The work environment was seen as a composition of task and human relations or social relations within the workplace. The study of Elton Mayo (1930) at the Western Electric Company plant in Hawthorne, Illinois, on the effects of the physical work environment on workers' performance, as cited by Smith (1987) led to a further shift in the work environment concept toward human psychological needs. The study suggested that employees' satisfaction and productivity increased by just the improvement of the physical environment and the salary but by the mere fact that employees are given attention. When the employees perceived that they are being observed and attended to by their employers, their performance increases. Then this result led to a broader investigation into workplace relationships. In the 1950s and 1960s, the concept of work environment extended to include communications and conflict within the workplace, and then the concern was to improve cooperation among organizational members (Walden, 2004). Based on this historical development, the definition of work environment varies from one researcher to another researcher. Raziq and Maulabakhsh (2015) defined work environment as the "interrelationship of employees in their workplace". This definition refers to only one aspect of the environment which is human relations. Salunke (2015) defines it as "the physical aspect of a workplace". Again, this definition refers to the physical aspects of the work environment which affect job satisfaction, health, concentration, and productivity. While, Kohun (1992) defined it as "the bridge between the employees and the workplace" which refers to the setting, situation, condition, or circumstances where employees perform their job.

As we have pointed out above, the work environment has been given serious attention by the management and the researchers because of its contribution to the organization's success. In recent years, many studies have been conducted concerning the effect of the work environment on job performance and those studies have found positive correlations. Demus, et al (2015), Jayaweera (2015), Al-Omari and Okasheh (2017), and Rachman (2021) found a positive correlation between the work environment and job performance. Raziq and Maulabakhsh (2015), and Agbozo, et al. (2015), Taheri, et al (2020), also found a positive effect of the work environment on job satisfaction. While Pandey (2017) found a significant correlation between work environment and employees' productivity, Kamanja (2019) found a positive effect on work engagement. There are still many more studies related to the influence good work environment on employees' performance, satisfaction, and productivity pointing out similar findings. These findings suggest that the work environment can affect employees' work behaviour. Therefore, the management needs to give serious attention to improving

the work environment. A negative work environment may hinder employees' job performance and result in the organization's failure to achieve its objective.

Innovative Work Environment

As we have defined and explained the work environment, we need to define and explain the concept of an innovative work environment. Both, work environment and innovative work environment are two concepts that need to be differentiated. Work environment refers to the physical and psychological work environment as we have discussed earlier in this paper. An innovative work environment refers to a specific environment that allows innovative ideas and behaviours to operate. To understand the concept as a whole, we need to review some studies related to the innovative work environment. There are several studies conducted by different researchers concerning the effect of an innovative work environment on job satisfaction like that of Mckinnon et al. (2003) and Zhou et al. (2005), Berson, Oreg, and Dvir (2008) which found to be significantly correlated, but unfortunately, these studies have not defined what innovative work environment means. The concept must be defined to identify its special characteristics and differentiate it from the concept of the work environment because both are different in terms of their characteristics. We can adopt some definitions offered by different experts on the subject matter of an innovative work environment. Rogovskiy (2021) defines an innovative work environment as "the kind of work environment that encourages its employees to embrace unorthodox thinking rather than discouraging them from it". He then argues that nurturing an innovation-friendly culture means putting the status quo aside and challenging typicality to create something new. Definition of Rogovskiy (2021) refers innovative work environment as an organizational climate that is innovation-oriented. Organizational climate is something that every member of the organization feels or perceives and experiences in the organization (Litwin (1968). It is an organizational climate that is oriented toward innovation. Innovation orientation means that knowledge workers believe that their innovative ideas are appreciated or encouraged (Xu, et al. 2022). According to Johannessen and Olsen (2011) only within a friendly organizational climate, do organizational members trust each other and it makes it easy to cooperate among members and make it easier to share knowledge and consequently generate new ideas. As Khan (1990) pointed out further that trusting relationship enables knowledge workers to dare and try new ideas and new affairs. An innovation-orientated organization that is supported by trust relationships allows knowledge workers to apply their innovative ideas and behaviours to achieve organizational objectives.

Research has found that within a friendly organizational climate, stress is reduced and improves the satisfaction and work commitment of knowledge workers (Farr & West, 1991). Within such as environment, innovative work behaviour is encouraged and it allows knowledge workers to innovate because they believe that innovative ideas and innovative behaviours are encouraged or supported. As Farr and West (1991) pointed out that innovation-oriented organization has a significant impact on knowledge workers' psychological state. Hennessey and Amabile (1998) found that when facing psychological threats and pressure, the tendency is to be defensive and not to show innovative behaviours. It is along such finding Hennessey and Amabile (1998) pointed out that intrinsic motivation is very crucial for individuals to generate creativity and innovation.

The influence of innovative organizational culture on performance has been one of the interests of the researchers. Studies have been conducted measuring the effect of innovative organizations on organizational performance or employees' performance. Ur Rehman, et al. (2019) conducted a study on the effect of innovative organizational culture and organizational learning on organizational performance and the study found that innovative culture and organizational learning are significantly correlated which suggests that changing the bureaucratic environment into an innovative environment is important to increase organizational performance. A similar study was conducted by Aboramadan, et al. (2020) on the effect of organizational and marketing innovation on business performance and the study found that organization and marketing innovation affect significantly business performance. In terms of the effect of organizational culture, and innovation on the employees' performance, Naranjo-Valencia, et al (2016) also found a significant influence of innovation culture on the employees' performance.

Work Behaviour and Innovative Work Behaviour

Work behaviour is one of the key dimensions of performance management. The organization can achieve its organizational objectives when the work behaviours of employees are congruent with the task and the objective of the organization. Therefore, the management needs to manage work behaviour and define what kind of work behaviours are required to accomplish the task and achieve organizational objectives. A clear concept of work behaviour is then necessary. Concerning the concept of work behaviour, researchers have not come up with a common concept. However, reading some available research, shows that, there is always common ground to understand work behaviour. Campbell (1990) classified work behaviour according to its influence on organizational performance and then we have productive and counterproductive work behaviour. One on hand, productive work behaviour is related to work behaviours that are task-related and contribute to performance. On the other hand, counterproductive work behaviour is concerning work behaviours that are not task-related and harm the individuals, organization, and organizational objectives as a whole (Motowidlo, 2003, 48). In a similar vein, Murphy (2004) classified work behaviour according to its impact on the organization and so we have behaviours that are closely related to a task, human relations, and destructive behaviour. Based on those concepts that we have presented, then it is understood that work behaviours are behaviours that are related to tasks which are categorized as productive and counterproductive behaviour. Work behaviours are not isolated from personality and work environmental issues. Landis (2015) pointed out that personality has a strong influence on work behaviour and career success as he argued that a person can perform well if there is a fit between personality and the job, the team, and the overall organization. This is

also emphasized by Barrick, et al (2013) that traits and job characteristics explain work behaviours and work outcomes. Concerning the influence of the work environment on innovative work behaviour, Wang (2021) found that the dynamics of the work environment affect innovative work behaviour and performance.

After we have understood the concept of work behaviour, then now we understand what innovative work behaviour means. De Spiegelaere, et al. (2014) define innovative work behaviour as "the behaviours that are aimed at the generation, introduction and the application of ideas, processes, products, procedures, new and intended to benefit the relevant unit of adoption". In this regard, it is understood that innovative work behaviour is not just innovative work behaviour without any purpose but it is work behaviour that serves the purpose of the organization. de Jong and Den Hartog (2008) identified four dimensions of innovative work behaviour namely opportunity exploration (paying attention to issues that are not part of daily work and wondering how things can be improved), idea generation (searching out new working methods, techniques or instruments, generate original solutions for problems, find new approaches to execute tasks), championing (make important organizational members enthusiastic for innovative ideas, attempt to convince people to support an innovative idea) and application (systematically introduce innovative ideas into work practices, contribute to the implementation of new ideas, and put the effort in the development of new things).

Just like work behaviour is not isolated from the organizational environment, it is the same with innovative work behaviour. It is the effect of other factors of the organization such as leadership and work environment. Zhang, et al. (2021) studied the effect of transformational leadership styles and innovative work behaviour of employees and their study found that there is a positive correlation between the two variables. Earlier, Sharifirad (2013), Tangrukwaraskul, and Kulchanarat (2018) conducted a similar study and found that transformational leadership is not only affecting innovative work behaviour but is also affecting employees' well-being. In terms of the influence of the work environment on innovative work behaviour, Shah, et al (2022) studied the effect of workplace learning on innovative work behaviour and their study concluded that workplace learning is significantly correlated to innovative work behaviour.

Conceptual Frameworks

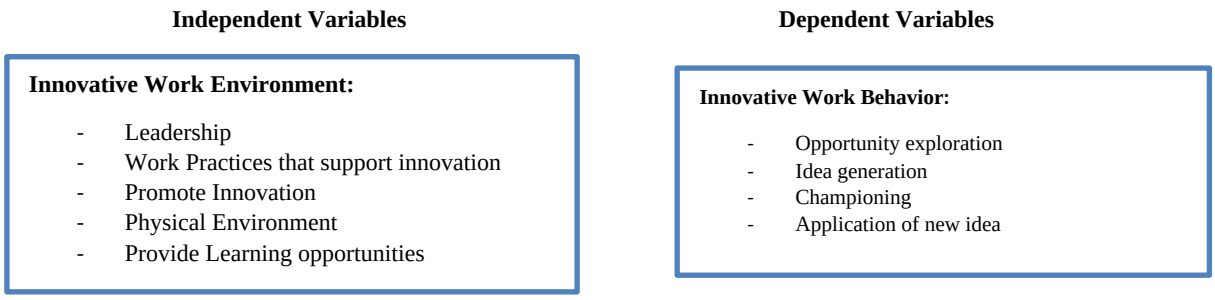

Figure 1: The conceptual frameworks explain the purpose and the content of the study. It aims to determine the correlation between the innovative work environment and the innovative work behaviour of employees; *Source:* Australian Government (2022) De Jong & Den Hartog. (2008).

The study aims to examine the effect of an innovative work environment on the innovative work behaviour of employees. It specifically seeks to answer the following questions:

i. What is the innovative work environment of the Divine Word College of Laoag in terms of
   a. Leadership
   b. Work practices that support innovation
   c. Promoting innovation
   d. Physical environment
   e. Providing learning opportunities
ii. What is the innovative work behaviour of employees in terms of
   a. Opportunity exploration
   b. Idea generation
   c. Championing
   d. Application of ideas.
iii. Is there a relationship between an innovative work environment and innovative work behaviour?

Assumption

The study assumes that an innovative work environment influences the innovative work behaviours of employees and they can be measured.

Hypothesis

Shah, et al (2022) studied the effect of workplace learning on innovative work behaviour and they found a correlation between the two variables, Rosdaniati and Muafi (2021) studied the effect of workplace happiness on innovative work behaviour and they found that workplace happiness is a significant predictor to innovative work behaviour. Thus, the current study hypothesizes that an innovative work environment affects the innovative work behaviour of the employees.

Scope and Delimitation of the Study

The study limits its investigation of the effect of an innovative work environment to five dimensions namely leadership, work practices that support innovation, promoting innovation, physical environment, learning opportunities, and innovative work behaviour in terms of four dimensions namely opportunity exploration, idea generation, championing and application of ideas. The population is limited to all employees of Divine Word College of Laoag.

Research Methodology

As required by scientific research, research needs to follow the prescribed procedures or research methodology. Following such requirements, the current research is following a specific method of investigation. Wilkinson, (2000), and Leedy, (1974) opined that research methodology is an established process for conducting the inquiry. It applies certain methods to determine, select, and analyze the data related to the concerned topic, Therefore, the current study applies certain methods of investigation such as research design, data gathering instruments method, the population of the study, the locale of the study, data gathering procedures, and the statistical treatment of data.

Research Design of the study

The research design of the study is the descriptive assessment and descriptive correlational research design. Ariola (2006) argued that a descriptive correlation study is intended to describe the relationship among variables without seeking to establish a causal connection. While descriptive research is simply to describe a population, a situation, or a phenomenon. It is also used to describe profiles, frequency distribution, describe characteristics of people, situations, or phenomena. In short, it answers the question of what, when, how, where, and not why question (McCombes, 2020).

The Locale of the Study

The locale of the study was Divine Word College of Laoag and Divine Word College of Vigan. These colleges are located in Laoag City, the capital of Ilocos Norte and Vigan City, Ilocos Sur.

Population

The respondents of the study are the employees of the colleges. Since the number of employees is limited, the total enumeration sampling was used and thus all faculty and employees from the college were taken as respondents to the study.

Data Gathering instruments

The study adopted validated questionnaires by the Australian Government (2022) on the innovative environment, and de Jong and Den Hartog (2008) on innovative work behaviour (IWB).

Data Gathering Procedures

To preserve the integrity of scientific research, the data were gathered after the approval of the Presidents of the college. The researcher sent a letter to the president and after the letter was approved, the questionnaires were distributed by the researcher's representative. Then the researcher's representative from the college collected the data and submitted it to the researcher for tabulation.

Ethical Procedures

The study was carried out after the research ethics committee examined and approved the content of the paper if it does not violate ethical standards and if it does not cause harm to human life and the environment.

Statistical Treatment of Data

To analyze the data, a descriptive and inferential statistic was used. The weighted mean was used to determine the level of innovative leadership style, innovative knowledge and skills, and innovative work behaviour of employees, and the Analysis of Variance (ANOVA) was used to measure the correlation between innovative work environment and innovative work behaviour.

The following ranges of values with their descriptive interpretation will be used:

Statistical Range	Descriptive Interpretation
4.21-5.00	strongly agree/ Very High
3.41-4.20	Agree / High
2.61-3.40	somewhat agree/ Moderate
1.81-2.60	Disagree/Low
1.00-1.80	Strongly disagree/Very Low

Data Presentation and Analysis

This part presents the data that were gathered through research questionnaires. The data are presented according to the statement of the problems.

Problem 1: What is the innovative work environment of the Divine Word College of Laoag in terms of

i. Leadership
ii. Work practices that support innovation
iii. Promoting innovation
iv. Physical environment
v. Providing learning opportunities

Table 1: Innovative Work Environment In Terms Of Leadership

	Innovative Work Environment	**Mean**	**DI**
Indicators	**Leadership**		
1	Makes Innovation an integral part of leadership and management activities.	4.02	A/H
2	Demonstrate positive reception of ideas from others and provide constructive advice	4.04	A/H
3	Establish and maintain a relationship based on mutual respect and trust	4.08	A/H
4	Take considerate risks to open up opportunities for innovation	4.04	A/H
5	Regularly evaluate own approaches for consistency with the wider organizational context	3.98	A/H
	Composite Mean	**4.03**	**A/H**

Source: Australian Government (2022)

Based on the data presented in the table, reveals that as a whole, the innovative work environment obtained a composite mean rating of 4.03 which is interpreted as "agree/high". The mean rating indicates that as a whole, the innovative work environment is not very high and it is not also very low, low or moderate but it is high. Even if the indicators are taken singly, they are all rated within the same level mean range. Employees agree that innovation is an integral part of leadership (4.02), a positive reception of ideas coming from others (4.04), a mutual relationship based on respect and trust (4.08), and allowances for employees to take a risk for innovation (4.04) and regular evaluation of approaches for consistency (3.98).

Leadership always plays an important role in setting the tone for organizational culture as suggested by Helbig (2022) as he argued that “effective leaders understand the power of strong workplace culture and they prioritize it daily”. The same idea is also emphasized by Arnett, et al. (2017) when they discussed the role of leadership in setting the tone for a positive work environment. Their views suggest that leaders must create an environment where employees are allowed to be innovative and must start from themselves. They should set an example in terms of innovative behaviour that employees can learn and imitate.

Table 2: Innovative Work Environment Along With Work Practices That Support Innovation

Indicators	**Innovative Work Environment**	**Mean**	**DI**
	Work Practices that support Innovations		
1	Consult and establish working conditions that reflect and encourage innovative practice.	3.97	A/H
2	Introduce and maintain workplace procedures that foster innovation and allow for rigorous evaluation of innovative ideas	3.97	A/H
3	Facilitate and participate in collaborative work arrangements to foster innovation	3.97	A/H
4	Build and lead teams to work in ways that maximize opportunities for innovation	3.99	A/H
	Composite Mean	**3.98**	**A/H**

Source: Australian Government (2022)

As suggested by the data in the table, it shows that as a whole, innovative work environment along with workplace practices gained a composite mean rating of 3.98 which is considered as “agree or high”. The mean rating indicates that as a whole the innovative work environment of the Divine Word College of Laoag and Vigan concerning work practices is not very high and it is not also very

low, low or moderate but it is high. Even when the indicators are taken separately, they all are assessed with the same level of mean rating. Employees agree that working conditions encourage innovative practices (3.97), rigorous evaluation of innovative ideas (3.97), collaborative work arrangements to foster innovation (3.97), and maximization of opportunities for innovation (3.98).

An innovative workplace is one of the key factors contributing to organizational performance. Studies have been conducted related to this concern and studies suggested that creating innovative workplace culture is important to achieve organizational objectives (Oeij & Vass, 2016, Stoffers, et al., 2021, Taneseb & Park, 2020). It is along this concern, Serrat (2009) suggested harnessing creativity and innovation in the workplace is the role of leadership. Leaders must establish working conditions that encourage innovative practices, innovative ideas. Serrat (2009) pointed out further that creativity is the heart of human endeavour because, without it, there will be no progress.

Table 3: Innovative Work Environment in Terms of Promoting Innovation

	Innovative Work Environment	**Mean**	**DI**
Indicators	**Promoting innovation**		
1	Acknowledge suggestions, improvements and innovations from all colleagues	4.08	A/H
2	Find appropriate ways of celebrating and promoting innovation	4.05	A/H
3	Promote and reinforce the value of innovation according to the vision and objectives of the organization	4.05	A/H
4	Promote and support the evaluation of innovative ideas within the wider organizational context	4.07	A/H
	Composite Mean	**4.06**	**A/H**

Source: Australian Government (2022)

As gleaned from the data, it manifests that as a whole innovative work environment in terms of promoting innovation in the workplace received a composite mean of 4.06 with the interpretation of "agree/high". This demonstrates that as a whole the innovative work environment in terms of promoting innovation is not very high and it is not also very low, low or moderate but it is high. Even if the indicators are taken singly, they all are rated within the same level of mean rating with the same interpretation as “agree/high”. Employees agree that there is an openness to suggestion from all colleagues (4.08), celebration or appreciation for promoting innovation (4.05), reinforcement of values for innovation (4.05), and evaluation of innovative ideas within the wider organizational context (4.07).

Studies have been conducted by different researchers concerning the effect of promoting innovation in the workplace on competitiveness. These studies came to the same conclusion that promoting innovation in the workplace is one of the keys to achieving a competitive advantage for the organization (Quaye & Mensah, 2019, Dogan, 2016, Clark & Guy, 1998). It is related to promoting innovation, Clark and Guy (1998) suggested the management to introduce policies that encourage advances in science and technology.

Table 4: Innovative Work Environment Concerning The Physical Environment

	Innovative Work Environment	**Mean**	**DI**
Indicators	**Physical environment**		
1	Evaluate the impact of the physical environment concerning innovation	3.96	A/H
2	Collaborate with colleagues about ideas for enhancing the physical work environment before taking actions	4.03	A/H
3	Consider the potential for supporting innovation when selecting physical resources and equipment	4.00	A/H
4	Design, fit-out and decorate workspaces to encourage creative mindsets, collaborative working and the development of positive workplace relationship	3.98	A/H
	Composite mean	**4.00**	**A/H**

Source: Australian Government (2022)

An innovative work environment is not limited to leadership practices, work practices and promoting innovation through policies, it includes the physical environment. Along with the physical environment, the data appears that as a whole, the innovative work environment along with the physical environment obtained a composite mean of 4.00 which is considered as "agree/high". The mean indicates that as a whole the innovative work environment in terms of the physical environment is not very high and it is not also very low, low or moderate but it is high. Even if the items are taken separately, all items are rated within the same level of mean rating with the same interpretation of "agree/high". Employees agree that the physical environment supports innovation (3.96), there is a process of selecting physical resources and equipment that support innovation (4.00) and designing, and decorating workspaces to encourage creative mindsets, collaborative working and the development of positive workplace relationships (3.98).

The importance of workplace physical setups to innovation has been studied by several researchers. For example, Moultrie et.al (2007) pointed out the importance of physical setups that support innovation as they argued that physical setups should reflect the

firm's strategic intention toward innovation and provide a physical embodiment of their desired modes of working. The same recommendation was also given by Oksanen and Stahle (2013) that the physical environment should enable collaborative learning and reflect value orientation that is directed toward innovation.

Table 5: Innovative Work Environment Related to Providing Learning Opportunities

	Innovative Work Environment	**Mean**	**DI**
Indicators	**Providing learning opportunities**		
1	Pro-actively share relevant information, knowledge and skills with colleagues	3.93	A/H
2	Provide or encourage formal and informal learning opportunities to help develop the skills needed for innovation	3.99	A/H
3	Create opportunities in which individuals can learn from the experience of others	3.98	A/H
	Composite mean	**3.96**	**A/H**
Overall Mean	*Leadership (4.03), Work practices (3.98), promoting innovation (4.06), Physical environment (4.00), and Providing learning opportunities (3.96).*	**4.00**	**A/H**

Source: Australian Government (2022)

An innovative work environment also provides learning opportunities. As gleaned from the data, it reveals that as a whole, an innovative work environment along with providing learning opportunities gained a composite mean of 3.96 which is translated as "agree/high". The mean rating suggests that as a whole innovative work environment in terms of providing learning opportunities is not very high and it is not also very low, low or moderate but it is high. Even when they are taken separately, they all are rated within the same level of mean rating with the interpretation of "agree/high". The employees agree that the environment is proactively sharing relevant information (3.93), providing formal and informal learning opportunities (3.99), and creating opportunities in which employees can learn from the experience of others (3.96).

An organization that provides learning opportunities for its employees can help employees advance their knowledge and skills related to their job which consequently improves performance (Tenney, 2020). According to Tenney (2020) one of the key features of the learning environment is an alignment between business strategies and professional development through training. A study by Lehtonen et al., (2022) on the effect of workplace learning opportunities on job satisfaction and turnover intention suggested that the two variables are significantly correlated. The study recommends that people can leave the organization when they are not growing and satisfied.

The overall mean rating for the innovative work environment is 4.00 which is interpreted as "agree/high". This is supported by a sub-variable mean rating along with leadership (4.03), work practices (3.98), promoting innovation (4.06), physical environment (4.00), and providing learning opportunities (3.6). The 4.00 mean rating suggests that the innovative work environment of the school or institution is not very high and it is not also very low, low or moderate but it is high.

Problem 2: What is the innovative work behaviour of employees in terms of

i. Opportunity exploration
ii. Idea generation
iii. Championing
iv. Application of ideas

Table 6: Innovative Work Behaviour in Terms of Opportunity Exploration

	Innovative Work Behavior	**Mean**	**DI**
Indicators	**Opportunity exploration**		
1	I pay attention to issues that are not part of my daily work	3.69	**A/H**
2	I wonder how things can be improved	4.08	**A/H**
	Composite mean	**3.88**	**A/H**

Source: De Jong and Den Hartog (2008)

In consistency with learning opportunities is opportunity exploration**.** It requires the employees to discover opportunities and take advantage of the opportunities to help the organization achieve its objectives. Based on the data, it shows that as a whole innovative work behaviour of employees obtained a composite mean rating of 3.88 which is understood as "agree/high". This mean rating suggests that as a whole innovative work behaviour of employees is not very high and it is not also very low, low or moderate but it is high. Even if the items are taken singly, they all are rated within the same mean level with the same interpretation as "agree/high". Employees agree that they also pay attention to issues that are not part of their job descriptions (3.69), and think about how to improve things (4.08).

Opportunity exploration refers to the search for new ideas, methods or approaches to perform a task or to solve problems that are different from the usual way (Ngugi, 2021, Benitez, et al., 2018). The study by Tu, et al. (2022) found that when employees have the

opportunity exploration behaviour, the sustainable development of the company can be achieved or maintained and objectives can be achieved. The study by Matejun (2018) also found that opportunity exploration behaviour affects the competitive advantage of the company.

Table 7: Innovative Work Behaviour Along With Idea Generation

	Innovative work behaviour	**Mean**	**DI**
	Idea generation		
1	I search out new working methods, techniques or instruments	4.16	**A/H**
2	I generate original solutions for problems	4.08	**A/H**
3	I find new approaches to executing tasks	4.14	**A/H**
	Composite mean	**4.12**	**A/H**

Source: De Jong and Den Hartog (2008)

Innovative work behaviour always originated from innovative ideas; therefore, idea generation is one of the dimensions of innovative work behaviour. Creativity and innovation cannot be separated from idea generation (Mmehta, et al, 2014). Without idea generation, there will be no innovative work behaviour (Effendy & Sukmarani, 2021). Based on the data, it shows that as a whole, the innovative work behaviour of the employees along with idea generation received a composite mean rating of 4.12 which is understood as 'agree/high". This implies that employees' innovative work behaviour concerning idea generation is not very high and it is not also very low, low or moderate but it is still high. Even when they are taken singly, they all are rated within the same level of mean rating with the same interpretation as "agree/high". The employees agree that they search out new working methods (4.16), generate new solutions to problems (4.08), and find new approaches to execute the task (4.14).

Idea generation leads to creativity and innovation and it is an assurance for growth and development (Mehta, et al, 2014). Cerne, et al., (2022) pointed out that a typical innovation process in an organization always begins with idea generation, individual creativity and useful ideas.

Table 8: Innovative Work Behaviour Concerning Championing

	Innovative Work Behaviour	**Mean**	**DI**
	Championing		
1	I make important organizational members enthusiastic about innovative ideas	4.03	**A/H**
2	I attempt to convince people to support an innovative idea	4.03	**A/H**
	Composite mean	**4.03**.	**A/H**

Source: De Jong and Den Hartog (2008)

Championing innovative ideas and supporting innovative ideas is one of the key elements of organizational success. Concerning this concept, the data reveals that as a whole innovative work behaviour employees concerning idea championing obtained a composite mean of 4.03 which is interpreted as "agree/high". This suggests that as a whole innovative work behaviour of employees concerning championing is not very high and it is not also very low, low or moderate but it is high. Even if the indicators are taken separately, all are rated within the same level of mean rating with the same interpretation. The employees agree that they make important organizational members enthusiastic about innovative ideas (4.03) and convince people to support innovative ideas.

The role of a leader in creating an environment that supports innovative work behaviour is important. Amabile and Khaire (2008) pointed out that in today's economy which is driven by innovation, it is important to have managers who understand the importance of innovative ideas and how to generate great ideas. Anderson, et al. (2014) argued that creativity and innovation are vital for organizational success. Creating an environment that enhances creative innovative ideas is an integral part of the leadership role (Kaziol-Nadolna, 2020).

Table 9: Innovative Work Behaviour Related to The Application

	Innovative work behaviour	**Mean**	**DI**
Indicators	**Application**		
1	I systematically introduce innovative ideas into work practices	4.03	**A/H**
2	I contribute to the implementation of new ideas	4.03	**A/H**
3	I put the effort into the development of new things	4.08	**A/H**
	Composite mean	**4.06**	**A/H**
Overall Mean	***Opportunity exploration (3.88), Idea generation (4.12), Championing (4.03), Application of ideas (4.06)***	**4.00**	**A/H**

Source: De Jong and Den Hartog (2008)

Championing innovative ideas is important; however, the application of ideas is equivalently important because application translates innovative ideas into a tangible product or service. Related to this element, the data shows that as a whole innovative work behaviour

concerning the application of innovative ideas gained a composite mean rating of 4.00 which is understood as "agree/high". The such mean rating indicates that as a whole employees' innovative work behaviour in terms of the application of ideas is not very high and it is not also very low, low or moderate but it is high. Even when the items are taken singly, they all are rated within the same level of mean rating. The employees agree that they systematically introduce innovative ideas into work practices (4.03), contribute to the implementation of new ideas (4.03), and exert effort to develop new ideas (4.08).

Innovation is so crucial for an organization's competitiveness and development. Since it is so important for organizational development, thus, the organizational environment must allow employees' autonomy to apply their innovative ideas. As pointed out by Reisinger and Fetterer (2021) that it is not flexibility that employees want but it is autonomy. The study by Burcharth, et al (2017) suggested that the economic performance of different firms is associated with autonomy in which the firms provide employees with time, freedom and independence to apply their ideas in their own work.

The overall mean rating for innovative work behaviour is 4.00 which is the same as an innovative work environment. This is supported by its sub-variable mean ratings along with opportunity exploration (3.88), idea generation (4.12), championing (4.03), and application of ideas (4.06). This concludes that the innovative work behaviour of the employees of the school is not very high and it is not also very low, low or moderate but it is high.

Problem 3: Is there a relationship between an innovative work environment and innovative work behaviour?

Table 10: Innovative Work Environment & Opportunity Exploration

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.739[a]	.547	.533	.48274

a. Predictors: (constant), providing learning opportunities, leadership, physical environment, promoting innovation, work practices that support innovation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.867	5	9.773	41.940	.000[b]
	Residual	40.548	174	.233		
	Total	89.415	179			

a. Dependent variable: opportunity exploration

b. Predictors: (constant), provıdıng learnıng opportunities, leadership, physical environment, promoting innovation, work practices that support innovation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.924	.234		3.952	.000
	Leadership	.307	.132	.287	2.320	.021
	Work practices that support innovation	.228	.140	.221	1.637	.103
	Promoting innovation	-.380	.112	-.376	-3.394	.001
	Physical environment	.392	.095	.428	4.111	.000
	Providing learning opportunities	.200	.103	.194	1.953	.052

a. Dependent Variable: Opportunity Exploration

The innovative work environment of DWCL in terms of leadership, work practices that support innovation, promoting innovation, physical environment, and providing learning opportunities when taken together could significantly predict the employees' innovative work behaviour along opportunity exploration, F (5, 180) = 41.940 p <.01 with .739 overlap between these predictor variables and opportunity exploration.

Specifically, leadership B = .307 p <.05, promoting innovation B = -.380 p <.01, and physical environment B = -.392 p < .01, .924 quantified the Y-intercept of the regression equation.

Therefore, the innovative work environment factors of leadership, work practices that support innovation, promoting innovation, physical environment, and providing learning opportunities could significantly predict the opportunity exploration of the DWCL employees.

However, when the innovative work environment factors were considered singly, only leadership, promoting innovation, and physical environment could significantly predict the employees' innovative work behaviour in terms of opportunity exploration.

Therefore, the variations in the DWCL employees' innovative work behaviour as regards opportunity exploration are attributed to the innovative work environment of leadership, promoting innovation, and the physical environment.

Table 11: Innovative Work Environment & Championing

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705[a]	.496	.482	.42992
a. predictors: (constant), providing learning opportunities, leadership, physical environment, promoting innovation, work practices that support innovation				

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.703	5	6.341	34.304	.000[b]
	Residual	32.161	174	.185		
	Total	63.864	179			
a. Dependent Variable: Idea Generation						
b. Predictors: (Constant), Providing Learning Opportunities, Leadership, Physical Environment, Promoting Innovation, Work Practices						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.499	.208		7.202	.000
	Leadership	.309	.118	.342	2.627	.009
	Work practices that support innovation	-.142	.124	-.163	-1.147	.253
	Promoting innovation	.026	.100	.031	.263	.793
	Physical environment	-.014	.085	-.018	-.163	.871
	Providing learning opportunities	.478	.091	.547	5.236	.000
a. Dependent Variable: Idea Generation						

The results of the multiple linear regression analysis indicate that when the innovative work environment factors of leadership, work practices that support innovation, promoting innovation, physical environment, and providing learning opportunities when taken jointly could significantly predict the DWCL employees' innovative work behaviour in terms of idea generation, $F(5,180) = 34.304$ $p < .01$ with .705 overlap between these predictor variables and idea generation.

However, when these different innovative work environment factors were considered singly only leadership $B = .309$ $p < .01$, and providing learning opportunities $B = .478$ $p < .01$, 1.499 quantified the Y-intercept of the regression equation.

Thus, leadership, work practices that support innovation, promote innovation, physical environment, and provide learning opportunities taken together could significantly predict the DWCL employees' innovative work behaviour in terms of idea generation.

Meanwhile, when these innovative work environment factors were considered singly, only leadership and providing learning opportunities could predict the idea generation of the employees.

Hence, the differences observed in the employees' innovative work behaviour in terms of idea generation are due to the variations noted in the innovative work environment of leadership and providing learning opportunities.

Table 12: Innovative Work Environment & Application

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.740[a]	.548	.535	.39517

a. Predictors: (Constant), Providing Learning Opportunities, Leadership, Physical Environment, Promoting Innovation, Work Practices That Support Innovation

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.911	5	6.582	42.151	.000[b]
	Residual	27.171	174	.156		
	Total	60.082	179			

a. Dependent Variable: Championing

b. Predictors: (Constant), Providing Learning Opportunities, Leadership, Physical Environment, Promoting Innovation, Work Practices

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.469	.191		7.679	.000
	Leadership	-.107	.108	-.123	-.992	.323
	Work practices that support innovation	.320	.114	.377	2.801	.006
	Promoting innovation	.047	.092	.057	.516	.606
	Physical environment	-.015	.078	-.020	-.196	.845
	Providing learning opportunities	.401	.084	.473	4.775	.000

a. Dependent Variable: Championing

When the different innovative work environment factors such as leadership, work practices that support innovation, promoting innovation, physical environment, and providing learning opportunities are taken together, they could significantly predict the employees' innovative work behaviour in terms of championing, F (5,180) = 42.151 p <.01 with .740 overlap between these predictor variables and championing.

Particularly, work practices that support innovation B = .320 p < .01 and providing learning opportunities B = .401 p < .01, 1.469 quantified the Y-intercept of the regression equation.

Thus, when leadership, work practices that support innovation, promote innovation, physical environment, and provide learning opportunities are taken together they could significantly predict the employees' innovative work behaviour championing.

However, when the predictor variables were taken singly, only the predictor variables work practices that support innovation and provide learning opportunities that could significantly predict the DWCL employees' innovative work behaviour in terms of championing.

Hence, the differences recorded in the employees' innovative work behaviour of championing are due to the differences they experienced along work practices that support innovation, and provide learning opportunities.

The innovative work environment factors such as leadership, work practices that support innovation, promoting innovation, physical environment, and providing learning opportunities when taken together could significantly predict the DWCL employees' innovative work behaviour of an application, F (5,180) = 39.393 p <.01 with .729 overlap between the predictor variables and application.

However, when the predictor variables were taken singly, only the innovative work environment of providing learning opportunities B = .481 p <.01, 1.493 quantified the Y-intercept of the regression equation.

Hence, leadership, work practices that support innovation, promote innovation, physical environment, and provide learning opportunities taken together could significantly predict the employees' innovative work behaviour in terms of application.

But when the different predictor variables were taken singly, only the factor providing learning opportunities can predict the innovative work behaviour of the employees as to application.

Therefore, the variations observed in the employees' innovative work behaviour in terms of application are attributed to the differences they experienced in the innovative work environment of providing learning opportunities.

Table 13: Innovative Work Environment & Application

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.729[a]	.531	.517	.41088

a. Predictors: (Constant), Providing Learning Opportunities, Leadership, Physical Environment, Promoting Innovation, Work Practices

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.253	5	6.651	39.393	.000[b]
	Residual	29.376	174	.169		
	Total	62.629	179			

a. Dependent Variable: Application

b. Predictors: (Constant), Providing Learning Opportunities, Leadership, Physical Environment, Promoting Innovation, Work Practices That Support Innovation

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.493	.199		7.505	.000
	Leadership	-.160	.113	-.178	-1.419	.158
	Work practices that support innovation	.224	.119	.259	1.886	.061
	Promoting innovation	.153	.095	.180	1.600	.111
	Physical environment	-.053	.081	-.069	-.654	.514
	Providing learning opportunities	.481	.087	.556	5.512	.000

a. Dependent Variable: Application

Result and Discussion

The study aims to determine the effect of an innovative work environment on the innovative work behaviour of the employees. The results of the study found that innovative work environments affect significantly the innovative work behaviour of the employees. This result recommends that management needs to improve the work environment by introducing policies that allow employees to be innovative and creative. Innovative work behaviour has been defined as the contribution of individual employees or groups within the organization to introduce new products, services, tasks or work-related ideas to contribute to the overall innovativeness and produces desirable outcomes (Farrukh, et.al., 2021). These are sets of behavioural tasks that help employees develop, promote and implement new and innovative ideas (Farrukh, et.al., 2023).

Innovative work behaviour is not just an individual desire but is also a product of the work environment. As Shah, et al., (2022) pointed out that nurturing innovative work behaviour is necessarily nurturing workplace learning. In other words, innovative work behaviour will not happen unless the workplace allows innovative learning where employees are allowed to exercise creative and innovative ideas. Workplace learning can improve competencies and skills and finally help innovative work behaviour. This is the role of leadership which allows employees to explore opportunities, generate ideas and apply their new ideas to improve products or services (Coun, et al., 2021).

No one can deny the significant effect of innovative work behaviour on organizational performance. The result of different studies has indicated that innovative work behaviour contributes significantly to business performance (Jankelova, et al.,2021, Lyndon, et al., 2018, Shanker, et al., 2017, Leong & Rasli, 2013). These studies recommend that management needs to introduce policies that encourage innovative work behaviour of the employees as suggested by Soleas (2020) as he argued that leaders should focus on issues that encourage curiosity, and interest and if they use rewards, should focus their strategies to give related rewards. Without it, it could risk the innovative behaviour of employees.

Conclusion

Based on the purpose and the statement of the problem of the study, the study concludes that the innovative work environment and innovative work behaviour of the employees are considered high but not very high. As indicated by the Analysis of variance, the study concludes that an innovative work environment could predict significantly the innovative work behaviour of the employees. Therefore, one of the main roles of the management is to introduce policies that allow employees to exercise their innovative ideas and innovative behaviour. Autonomy and empowerment are important.

The study recognizes its limitation because it limits its investigation only to two colleges with a limited population. The next study may include other colleges to reflect the comprehensive picture of the innovative work environment and innovative work behaviour of Divine Word Colleges.

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